Chapter 3

WORKBOOK FOR MODULE THREE

DEFINING THE PROBLEM: The Seven Management and Planning Tools

Mr. Mark Gordon
National Center For Advanced Technologies

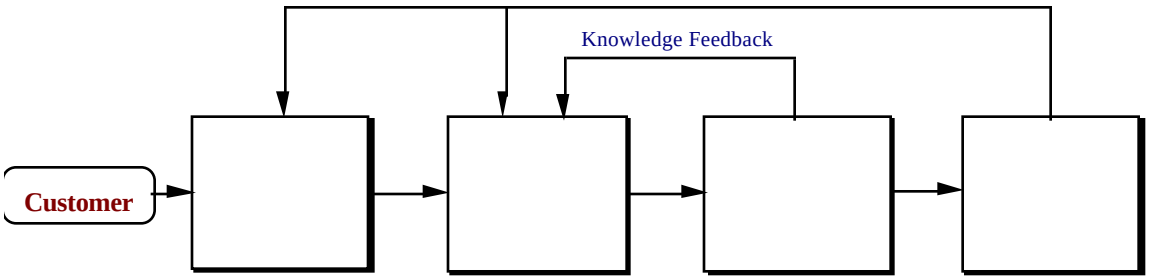
This chapter of the workbook consists of an exercise at the end of the video, and a list of questions to be answered after viewing the videotape. Refer to the included book: "The Memory Jogger II", from Goal/QPC that is a part of your video materials. It might be a good idea to flip through the book before viewing the videotape.

STAGE TWO (End of Video)

Q1. How Does IPPD require the team to define the problem?

Q2. Name one difference between conventional brainstorming and the seven
management and planning tool process.

Q3. Fill in the various parts of the Quality Engineering Process.



Q4. What is a difference between the seven quality tools and the seven management and planning tools?

Q5. What tool would you use with if you are very familiar with the problem and wanted to determine the most important factors?

Q6. What is the usual starting point in the flow for the seven tools?

Q7. When might you need a logical decomposition tool?

Q8. What makes the prioritization matrix a special case of a matrix diagram?

Q9. What does a node represent in an activity network? What does a connection between nodes represent?

Q10. Which of the seven management and planning tools can be used to directly support the construction of a QFD matrix?

ANSWERS for Module Three

DEFINING THE PROBLEM

Q1. How Does IPPD require the team to define the problem?

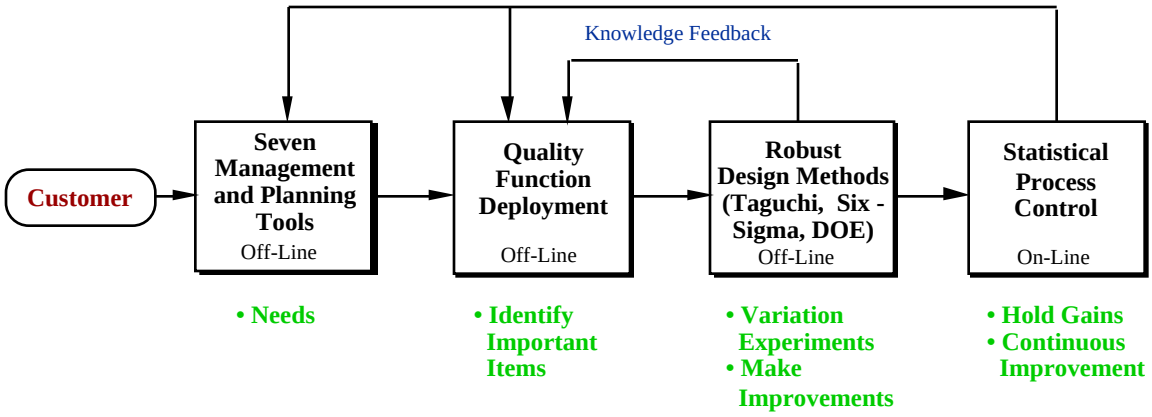
A1. Within IPPD, the problem does not start with a list of design requirements. Instead, it starts with the rational for deciding these design requirements, and the people determining them. The basis of IPPD is matching a need with the best way of meeting that need, including cost, quality, and cycle time. Making the best trades-offs requires more knowledge about how the need was determined, which often means discussions with everyone in the product chain. Therefore, defining the problem in IPPD means starting earlier in the requirement chain, and also requires the early involvement of people with specialized knowledge, such as users or manufacturers.

Q2. Name one difference between conventional brainstorming and the seven management and planning tool process.

A2. Formally defined Process
Formally defining structure for results.
Use results from one brainstorming tool in the next.

Q3. Fill in the various parts of the Quality Engineering Process.

A3.



Q4. What is a difference between the seven quality tools and the seven management and planning tools.

A4. The seven quality tools are deterministic tools that are usually used in the manufacturing process, while the seven management and planning tools are not deterministic and are used off line in the design and development phases. The difference is processing data and numbers versus organizing words and ranking ideas.

Q5. What tool would you use with if you are very familiar with the problem and wanted to determine the most important factors?

A5. The interrelationship digraph. This tools requires the team to be knowledgeable about the subject, because the objective is to plot which areas of the problem drive or cause other areas. By looking at the number of arrows going in and out of the displayed topics, you can characterize them as process drivers, bottle necks, or isolated issues.

Q6. What is the usual starting point in the flow for the seven tools?

A6. The affinity diagram is the usual starting point, because of the flexibility of the format and because it is a bottom-up tool, starting with a broad range of creative ideas, and then grouping them together. Another starting point could be the interrelationship digraph, but this tool is primarily applied to the results of the affinity diagram.

Q7. When might you need a logical decomposition tool?

A7. When you are unfamiliar with the problem, a top-down tool such as the tree diagram can help you to logically deconstruct the issues, and put them in relation to other issues. This type of organization has been used in Work Breakdown Structures, and also in planning flow charts.

Q8. What makes the prioritization matrix a special case of a matrix diagram?

A8. The prioritization matrix is always a square matrix because is relates a set of issues to itself. The result is a ranking of importance relative to each of the other issues.

Q9. What does a node represent in an activity network? What does a connection between nodes represent?

A9. A node represents an activity that must be accomplished before moving on to the next node in the network. A connection represents information or a decision that is provided by one activity to the subsequent activity.

Q10. Which of the seven management and planning tools can be used to directly support the construction of a QFD matrix?

A10. The affinity diagram, the prioritization matrix, the interrelationship digraph, and the tree diagram can all be directly used for elements of a QFD matrix.